Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2, 25 and 97	)	ET Docket No. 98-142
of the Commission's Rules with	)	
Regard to the Mobile-Satellite	)	
Service Above 1 GHz	)	

REPLY COMMENTS OF CONSTELLATION COMMUNICATIONS, INC.

Constellation Communications, Inc. ("Constellation"), by counsel, hereby submits reply comments in the above-captioned proceeding. In its initial comments, Constellation supported the Commission's proposals with certain minor modifications. In addition to the Comments filed by Constellation, comments were also filed by L/Q Licensee, Inc., Globalstar, L.P. and AirTouch Communications, Inc. (jointly "the Globalstar Companies"), ICO Services Limited ("ICO"), Mobile Communications Holding, Inc. ("MCHI"), supporting the Commission's proposals. While not objecting to the proposed feeder link allocations, Satellite CD Radio, Inc. ("CD Radio"), Society of Broadcast Engineers, Incorporated ("SBE"), and the Fixed Point-to-Point Communications Section, Wireless Division, of the Telecommunications Industry Association ("Fixed Section") each raised issues concerning sharing of the 6700-7075 MHz band by Non-Geostationary Orbit Mobile Satellite Service ("NGSO MSS") feeder link earth stations and other systems operating in these bands.

At the outset, it should be emphasized that none of the parties object to the inclusion of the proposed NGSO MSS feeder link bands into the national table of frequency allocations in

Part 2 of the Commission's Rules and Regulations. All of the comments relate to specific implementation details that can be addressed, if necessary, when the specific coordination and licensing rules are adopted in other sections of the Commission's rules. These NGSO MSS feeder link allocations have been made by the International Telecommunications Union ("ITU") on a primary basis throughout the world. These allocations were made only after extensive and studies concluded that sharing was feasible between NGSO MSS feeder links and the other services operating in the 5, 6/7 and 15 GHz bands. Thus, the Commission should promptly conclude this proceeding by adopting the proposed allocations for NGSO MSS feeder links.

With respect to the proposed addition of footnote G126, both Constellation and the Globalstar companies raised concerns in connection with its applicability to differential GPS ("DGPS") stations operating in the 5091-5150 portion of the 5000-5150 MHz band. While Constellation would prefer restricting DGPS operations to the lower portion of the band, the Globalstar companies' proposed revision to footnote G126 would be an acceptable approach to addressing the concerns raised in Constellation's Comments.[1]

Constellation can also support ICO's proposal that the Commission adopt the higher power flux density ("PFD") coordination thresholds with respect to terrestrial services for NGSO MSS service links in the 2165-2200 MHz band. However, sharing of this band with other MSS systems is at issue in the Commission's 2 GHz band application proceedings, and the adoption of any such PFD coordination threshold for terrestrial coordination should not prejudge resolution of inter-system sharing issues as they apply to the pending 2 GHz band applications. In addition, it should be noted that coordination between CDMA NGSO MSS satellite systems in this band

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[1] *See* Comments of Globalstar Companies at 5.

will be based on power-flux density ("PFD") limits agreed to by the system operators. These limits are likely to be different from those specified as coordination thresholds with respect to terrestrial services.

CD Radio raises two specific issues. The first issue involves the protection of the receivers on the CD Radio satellites from the downlink transmissions from NGSO MSS feeder link satellite transmitters. In this case, the ITU has specified that the PFD produced by an NGSO MSS system at the GSO in the CD Radio feeder link band not exceed –168 dB(W/m^2-4 kHz). The ITU has also specified a maximum PFD of –154 dB(W/m^2-4 kHz) at the earth's surface to protect terrestrial services in this band. As the following calculation shows, operating an NGSO MSS satellite to comply with the terrestrial PFD limit should be sufficient to guarantee compliance with the PFD at the GSO since only a few of satellites in a non-GSO have a direct grazing path to any particular point on the GSO at the same instant of time.

Maximum PFD at earth's surface	-154.0	dBW/m^2-4 kHz
Constellation Satellite Altitude	2,000.0	km
Spreading Loss	137.0	dB
EIRP/4 kHz	-17.0	dBW/m^2-4 kHz
CD Radio Altitude	35,786.0	km
Earth Grazing Path Length	47,111.6	km
Spreading Loss	164.5	dB
PFD at CD Radio Satellite	-181.4	dBW/m^2-4 kHz
Maximum Permitted PFD at GSO	-168.0	dBW/m^2-4 kHz
Regulatory Margin	13.4	dB

CD Radio's second issue relates to the protection of NGSO MSS feeder link earth station receivers from CD Radio feeder link earth station transmitters. However, it is premature to address this situation until specific earth station locations and characteristics are specified by both CD Radio and NGSO MSS feeder link earth station operators. In any event, Constellation believes that the application of existing coordination procedures to this band should be adequate

to verify compatibility between the CD Radio and NGSO MSS feeder link earth stations. Selecting sites that can be coordinated between CD Radio and NGSO MSS operators should not be difficult because of the relatively small number of stations involved.

SBE does not object to sharing the band with NGSO MSS feeder links because it believes the PFD limits proposed by the Commission in the Notice are adequate to protect Broadcast Auxiliary Services ("BAS") in the band. For this reason, there is no need for the Commission to adopt any additional protection criteria for BAS facilities, such as a desired-to-undesired signal ratio,[2] since SBE calculations show that the proposed PFD limit is sufficient to protect BAS facilities from NGSO MSS downlinks.

With respect to protection of NGSO MSS feeder link earth stations from BAS transmitters, standard coordination procedures can be applied between the receiving earth stations and fixed BAS transmitters. Since there will be only a relatively few NGSO MSS feeder link earth stations, coordination with ground-based mobile BAS stations should also be feasible and not pose any substantial constraints on the development of these facilities. However, airborne TV pick-up facilities may present more difficult problems depending on their characteristics and operating modes. Constellation believes it is premature to adopt SBE's proposal to prohibit NGSO MSS earth stations from operating within 100 km of the top 100 TV markets. Additional information is needed on the transmission characteristics and operating requirements of airborne TV pick-up transmitters in order to properly assess their impact on siting NGSO MSS feeder link earth stations. Since there will be relatively few feeder link earth stations, it should be possible to develop a reasonable set of NGSO MSS feeder link earth station

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2 *See* SBE Comments at 2.

siting requirements and air borne TV pick-up operating conditions to protect reception of satellite signals at the feeder link earth stations.

The Fixed Section expresses its concern that the proposed downlink allocation at 6700-7075 MHz will inhibit the development of point-to-point microwave facilities, and it makes five specific proposals designated as (a) through (e) in its Comments.[3] Constellation agrees that coordination procedures will have to be adopted to insure an orderly introduction of NGSO MSS feeder links into the 6700-7075 MHz band. However, some of the specific proposals made by the Fixed Section are not necessary to implement such coordination procedures. Moreover, the adoption of any such coordination requirements and procedures are outside the scope of this proceeding, which is limited to amending the table of frequency allocations.

In particular, Constellation believes that there is no reason to question the adequacy of the PFD limits proposed by the Commission for the 6700-7075 MHz band to protect terrestrial services.[4] These limits are long-standing ITU sharing criteria between fixed satellite downlinks and terrestrial stations in this portion of the spectrum, and the technical calculation presented in the Fixed Section's comments are too cursory to warrant a departure from such well-established sharing criteria.[5] The protection of terrestrial services afforded by such a PFD limit eliminates the need for any additional special conditions to protect terrestrial services in the 6700-7075 MHz band, such as the one proposed as item (a) of the Fixed Section's Comments.[6]

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3 *See* Comments of Fixed Section at 8-9.

4 *See* Notice of Proposed Rulemaking in ET Docket No. 98-142 at ¶ 20.

5 *See* Comments of Fixed Section at 5.

6 *Id.* at 8.

Moreover, Constellation does not accept the Fixed Section's characterization that coordination procedures allow earth stations to "warehouse" frequencies.[7] Nor does Constellation agree with the Fixed Section's dire characterization of the potential impact on terrestrial services resulting from the adoption of the proposed allocations to support NGSO MSS feeder link operations, which is based on an extrapolation of its experiences in the 4 GHz band. The Fixed Section's characterization of the coordination process ignores the global frequency management constraints imposed on satellite systems sharing the spectrum with other space based systems. It also ignores the fact that although the feeder link spectrum requirements increase as a result of spot beams, that inefficiency is more than offset by the efficient frequency re-use on the service links. Thus, feeder link earth stations should be afforded access to the entire allocated band in the coordination process. While constraints may be placed on the number of frequencies a point-to-point microwave station can coordinate at one time, such constraints are primarily driven by the need to accommodate other terrestrial fixed stations and would be imposed even if the bands are not shared with space services. Moreover, as indicated in the Notice and Constellation's initial Comments, the number of feeder link earth stations will necessarily be small, making conditions in the 6/7 GHz band much different from those in the 4 GHz band. Thus, there is no basis for adopting condition (c) proposed by the Fixed Section.[8]

Constellation agrees with the Fixed Section's comment that a coordination procedure will be necessary that incorporates elements of items (b), (d) and (e) of its proposals. However, the specific details of the coordination procedures may differ from the specific proposals made by

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[7] *Id.* at 3.

[8] *Id.* at 8.

the Fixed Section and should be addressed in a separate rule making proceeding focusing on the specific coordination procedures and criteria to be applied in the 6700-7075 MHz band. Moreover, the information to be exchanged between feeder link earth station operators and terrestrial station operators in such coordination procedures should be the same as required by the existing coordination procedures, and the rules in the 6700-7075 MHz band should not impose any additional information requirements or conditions on coordination beyond the normal coordination and licensing procedures for earth stations in other shared bands that are contained in Part 25 of the rules. In particular, Constellation believes that items (c) and (d) of the Fixed Section comments are not appropriate for such a coordination process. The other Fixed Section proposals should be further reviewed to determine compatibility with existing coordination procedures.[9]

CONCLUSION

Adoption of the proposed feeder link allocations in the 5091-5250 MHz, 6700-7075 MHz and 15.43-15.63 GHz bands is essential to the implementation of the NGSO MSS systems already licensed by the Commission, as well as for the implementation of new NGSO MSS systems in the 2 GHz bands. All of the concerns raised by CD Radio, SBE and the Fixed Section have been addressed and should not delay adoption of the proposed NGSO MSS feeder link allocations. As demonstrated above, the PFD limits proposed by the Commission in this proceeding are adequate to fully address all of these concerns. For these reasons, Constellation urges the Commission to promptly adopt the revisions to Part 2 of the Commission's Rules and

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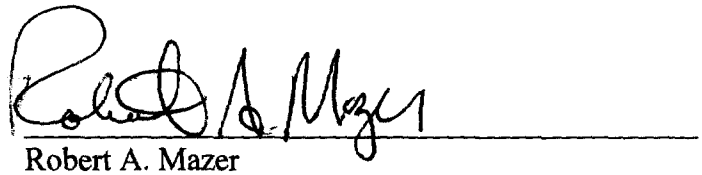
[9] *Id.* at 6.

Regulations as proposed in the Notice with the exception of the proposed new footnote G126 as discussed herein.

Finally, Constellation supports the proposals in the Notice relating to service link coordination. In considering proposed PFD limits in the 2483.5-2500 MHz band, Constellation notes that coordination between NGSO MSS systems using CDMA access will also be based on PFD limits agreed to by the NGSO MSS system operators. However, Constellation believes that the values for such inter-system PFD coordination levels are likely to be different from those specified by the Commission.

Respectfully submitted,



Robert A. Mazer
Vinson & Elkins L.L.P.
1455 Pennsylvania Avenue, N.W.
Washington, DC 20004
(202) 639-6500

Counsel for Constellation Communications, Inc.

Dated: October 13, 1998

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 13th day of October, 1998, a true and correct copy of the foregoing Reply Comments of Constellation Communications, Inc. was served by first class mail, postage prepaid, upon the following:

* Chairman William E. Kennard
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

* Commissioner Harold Furchtgott-Roth
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D.C. 20554

* Commissioner Michael Powell
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

* Commissioner Susan Ness
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

* Commissioner Gloria Tristani
Federal Communications Commission
1919 M Street, N.W., Room 826
Washington, D.C. 20554

* Ms. Regina Keeney
Chief, International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 830
Washington, D.C. 20554

* Mr. Thomas S. Tycz
Division Chief, Satellite &
Radiocommunications Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 520
Washington, D.C. 20554

* Ms. Fern J. Jarmulnek
Chief, Satellite &
Radiocommunication Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 520
Washington, D.C. 20554

* Mr. Karl Kensinger
Federal Communications Commission
2000 M Street, N.W., Room 514
Washington, D.C. 20554

* Mr. Harold Ng
Engineering Advisor
Satellite & Radiocommunications Division
International Bureau
Federal Communications Commission
2000 M Street, Room 801
Washington, D.C. 20554

* Ms. Cassandra Thomas
Deputy Division Chief
Satellite & Radiocommunication Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 810
Washington, D.C. 20554

* Mr. William Bell
Federal Communications Commission
2000 M Street, N.W., Room 508
Washington, D.C. 20554

Philip L. Malet, Esquire
Alfred M. Mamlet
Steptoe & Johnson
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036

Leslie Taylor, Esquire
Leslie Taylor Associates
6800 Carlynn Court
Bethesda, MD 20817-4302

William D. Wallace, Esquire
Crowell & Moring
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2505
Counsel for L/Q Licensee, Inc., Globalstar, L.P.

Michael Yourshaw
Carl R. Frank
Daniel J. Smith
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006-2304
Counsel for Satellite CD Radio, Inc.

Leonard Robert Raish
George Petrutsas
Fletcher, Heald & Hildreth, PLC
1300 North 17th Street, 11th Floor
Arlington, VA 22209-3801
Counsel for Fixed Point-to-Point Communications Section Network Equipment Division of the Telecommunications Industry Association

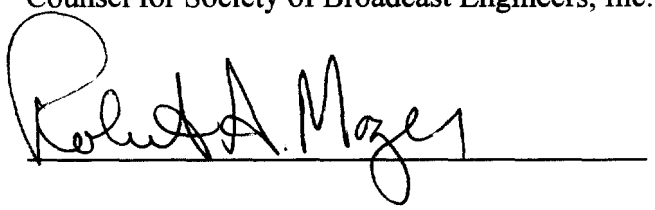
Cheryl A. Tritt
Sheryl J. Lincoln
Morrison & Foerster LLP
2000 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-1888
Counsel for ICO Services Limited

Jill Abeshouse Stern, Esquire
Sr. Vice President and General Counsel
Mobile Communications Holdings, Inc.
Two Lafayette Center
1133 Twenty-first Street, N.W.
Washington, D.C. 20036

Raul R. Rodriguez
Leventhal, Senter & Lerman
2000 K Street, N.W., Suite 600
Washington, D.C. 20006
Counsel to Mobile Communications Holdings, Inc.

Pamela J. Riley
AirTouch Communications, Inc.
1818 N Street, N.W., Suite 800
Washington, D.C. 20036

Christopher D. Imlay
Booth, Freret, Imlay & Tepper
5101 Wisconsin Avenue, N.W., Suite 307
Washington, D.C. 20016
Counsel for Society of Broadcast Engineers, Inc.



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